

CLAIMS

What is claimed is:

1. A liquid crystal display comprising:

a front panel,

5 a rear panel, and

a liquid crystal layer placed between two said panels,

wherein at least one of the front and rear panels comprises an internal polarizer situated between an electrode and a substrate in the panel, and said internal polarizer is made of a material chemically stable at an
10 elevated temperature of at least 150°C.

2. The liquid crystal display according to claim 1, wherein said internal polarizer is made of an optically anisotropic dichroic crystal film that comprises rodlike supramolecules comprising at least one disc-shaped polycyclic organic compound with conjugated π -system, and said film being characterized by an intermolecular spacing of 3.4 ± 0.3 Å along its
15 polarization axis.

3. The liquid crystal display according to claim 2, wherein said optically anisotropic dichroic film is formed from a lyotropic liquid crystal containing at least one dichroic dye.

4. The liquid crystal display according to claim 1 or 2, wherein thickness of said internal polarizer is less than 1 micron.

20 5. The liquid crystal display according to claim 1, wherein the polarizer material is chemically stable at an elevated temperature of at least 200°C.

6. The liquid crystal display according to claim 1, further comprising an external polarizer situated on the panel other than said internal polarizer.

25 7. The liquid crystal display according to claim 1, wherein said rear panel further comprises a reflecting layer.

8. The liquid crystal display according to claim 1, wherein said rear panel further comprises a semitransparent reflective layer and a backlighting system.

9. The liquid crystal display according to claim 7 or 8, wherein said front panel further comprises a front lighting system.

5 10. The liquid crystal display according to claim 7 or 8, wherein said reflecting layer is diffusive.

11. The liquid crystal display according to claim 7 or 8, wherein said reflecting layer is specular.

12. The liquid crystal display according to claim 7 or 8, wherein said reflecting layer is
10 conducting and performs the function of an electrode.

13. The liquid crystal display according to claim 8, further comprising at least one external polarizer.

14. The liquid crystal display according to claim 13, wherein the external polarizer is situated on the same panel as the internal polarizer.

15 15. The liquid crystal display according to claim 8 or 14, wherein said internal polarizer partially covers the substrate.

16. The liquid crystal display according to claim 1, wherein said rear panel comprises a backlighting system.

17. The liquid crystal display according to claim 1, wherein said polarizer performs
20 the function of a phase retarder and/or correcting light filter.

18. The liquid crystal display according to claim 1, further comprising an antireflection or antiglare coating on a front surface of the display.

19. The liquid crystal display according to claim 1, further comprising at least one of functional layers selected from the group consisting of a retardation layer, a protective layer, a

light-scattering layer, a planarization layer, a correcting light filter layer, and an insulating layer.

20. The liquid crystal display according to claim 1, further comprising a retardation layer made of an optically anisotropic dichroic crystal film that comprises rodlike
5 supramolecules comprising at least one disc-shaped polycyclic organic compound with conjugated π -system, and said film being characterized by an intermolecular spacing of 3.4 ± 0.3 Å along its polarization axis.

21. The liquid crystal display according to claim 1, wherein the thickness and the order of functional layers are selected so as ensure an interference extremum at the display
10 output for at least one wavelength in the spectral range from 500 to 600 nm.

22. The liquid crystal display according to any of claims 6 or 13, wherein said external polarizer is made of an optically anisotropic dichroic crystal film that comprises rodlike supramolecules comprising at least one disc-shaped polycyclic organic compound with conjugated π -system, and said film being characterized by an intermolecular spacing of
15 3.4 ± 0.3 Å along its polarization axis.

23. The liquid crystal display according to claim 22, wherein said optically anisotropic dichroic film is formed from a lyotropic liquid crystal containing at least one dichroic dye.